Data Management - Applications

Lecture	eCoastal Applications
Exercise A	Loading the eGIS Data Viewer Tools
Exercise B	Indexing a New Layer
Exercise C	Using the Data Picker tool
Exercise D	Using the Tools of the Data Viewer Toolbar

Module Introduction

Overview

This module will explain the data access procedures used to retrieve and view data stored in the geodatabase. We will also cover the steps necessary for indexing layers stored in the eCoastal system, and demonstrate some of the tools available in the custom toolbars.

Tools and Technology

ArcGIS Components

- ArcMap
- eGIS: Data Viewer Toolbar

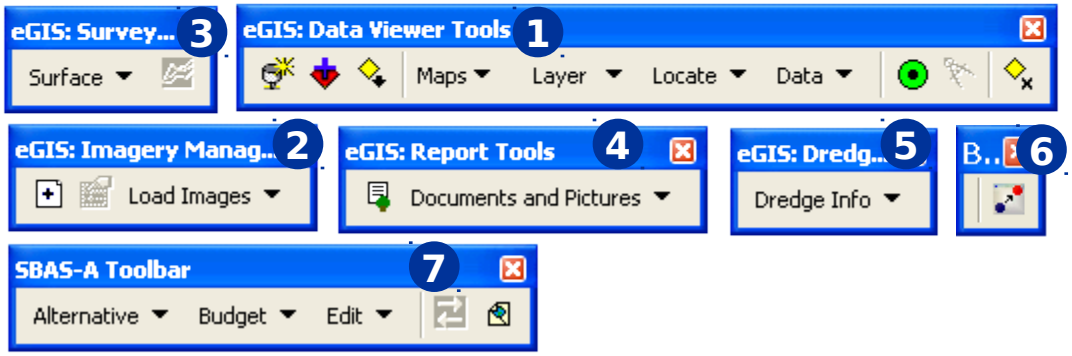
Skills Learned

- Ability to load new custom toolbars into ArcMap.
- Ability to locate and retrieve data from the geodatabase using the project name, category or keyword.
- Understand the functions and tools available on the eGIS: Data Viewer Toolbar.

Lecture: eCoastal Applications

The eCoastal's eGIS Toolbox was created as a comprehensive set of applications that enable stakeholders in management decisions to explore the broad spatial and temporal impacts of potential management actions. In the U.S. Army Corps of Engineers (USACE), these tools have emerged as necessary components for effective planning and prediction of regional and local coastal processes. A geographic information system with specialized applications was developed to provide baseline information for regions including hydrographic and topographic data, shoreline position, aerial and oblique photography, hyperspectal imagery, dredging records, nautical charts, and other data regarding regional utilities, infrastructure, and land use.

In this module we will discuss the Data Viewer Tools and Imagery Manager toolbars.



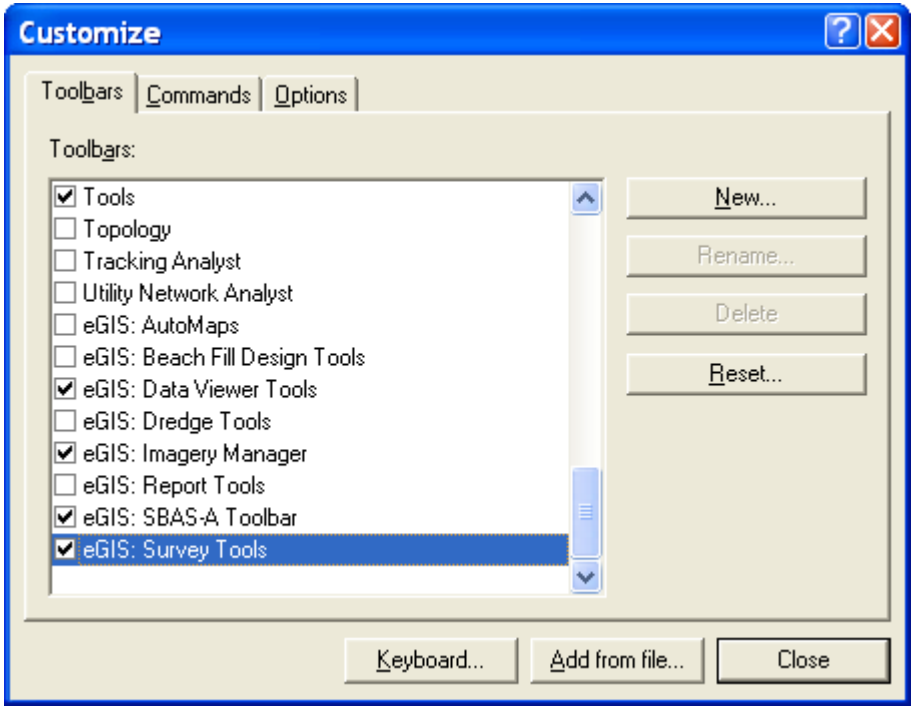
eGIS Toolbox

1. **Data Viewer Tools**
2. **Imagery Manager**
3. **Survey Tools**
4. **Report Tools**
5. **Dredge Tools**
6. **Beach Profile Loader**
7. **SBAS-A Toolbars**

Exercise A: Loading the eGIS Data Viewer Tools

eGIS Toolbox has been created to assist GIS users in data analysis and access to the geodatabase through the ArcGIS ArcMap interface.

Tools have been grouped by common categories and stored on a series of toolbars. Use the following instructions to load the toolbars into the ArcMap interface.



1. Start a new session of ArcMap and load all data from the C:\Training\Data\Intro_to_eCoastal directory.

2. To turn on all eGIS toolbars:
   - ☐ From the Tools menu in ArcMap, select 'Customize'.
   - ☐ Check the desired toolbar.

     Select the **Data Viewer, Imagery Manager, SBAS-A, and Survey Tools toolbars.**
   - ☐ Click **Close**. This will make the selected toolbar visible.

Exercise B: Indexing a New Layer

Background

In order for layers to appear in the Data Picker tool, the layer must first be created and indexed into the GIS Management Database. Once the layer is indexed, all users of the system can access the data.

Goal

After this exercise you will be able to index layer files for feature classes stored in the geodatabase.

Objectives

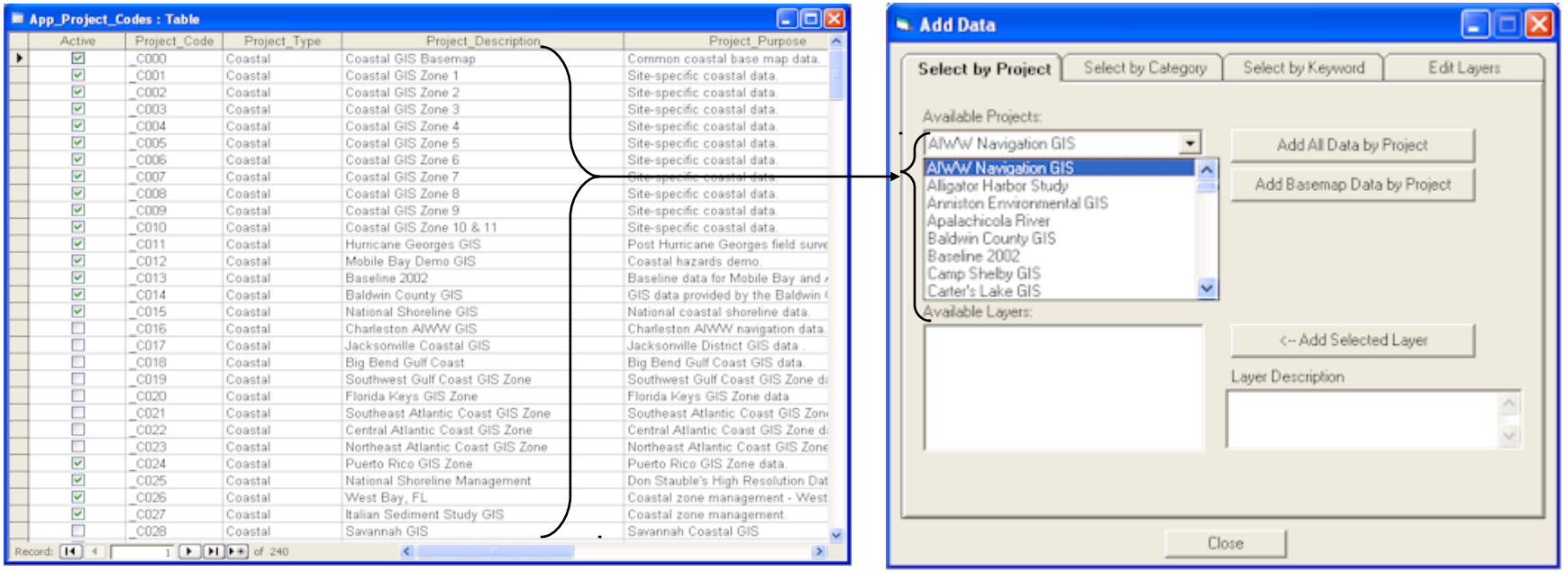
1. Access the geodatabase
2. Use the GIS Management Database to index the layer file
3. Use the Data Picker Tool

Exercise B: Indexing a New Layer

The GIS Management Database was created as a repository for indexing non-spatial data, such as reports, photos, spreadsheets, as well as managing all layers stored in the geodatabase. The contents of the GIS Management Database fuel the desktop and web applications. The main function of this database is to index and categorize each layer stored in the geodatabase.

The GIS Management Database exists in 2 formats – Microsoft Access and SQL Server. Two versions were created to allow this system to be transferable to those districts who do not have access to SQL server.

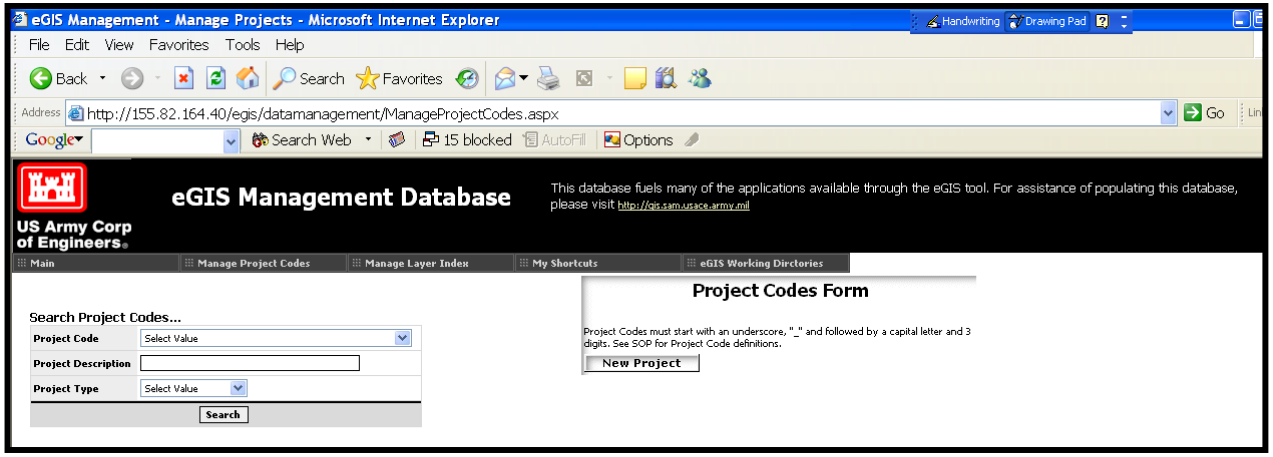
Here, the App_Project_Code table in the GIS Management Database populates the Available Projects list in the Data Picker Application.


App_Project_Codes : Table
Active
Project_Code
Project_Type
Project_Description
Project_Purpose
_C000 Coastal Coastal GIS Basemap Common coastal base map data.
_C001 Coastal Coastal GIS Zone 1 Site-specific coastal data.
_C002 Coastal Coastal GIS Zone 2 Site-specific coastal data.
_C003 Coastal Coastal GIS Zone 3 Site-specific coastal data.
_C004 Coastal Coastal GIS Zone 4 Site-specific coastal data.
_C005 Coastal Coastal GIS Zone 5 Site-specific coastal data.
_C006 Coastal Coastal GIS Zone 6 Site-specific coastal data.
_C007 Coastal Coastal GIS Zone 7 Site-specific coastal data.
_C008 Coastal Coastal GIS Zone 8 Site-specific coastal data.
_C009 Coastal Coastal GIS Zone 9 Site-specific coastal data.
_C010 Coastal Coastal GIS Zone 10 & 11 Site-specific coastal data.
_C011 Coastal Hurricane Georges GIS Post Hurricane Georges field surve
_C012 Coastal Mobile Bay Demo GIS Coastal hazards demo.
_C013 Coastal Baseline 2002 Baseline data for Mobile Bay and
_C014 Coastal Baldwin County GIS GIS data provided by the Baldwin
_C015 Coastal National Shoreline GIS National coastal shoreline data.
_C016 Coastal Charleston AIWW GIS Charleston AIWW navigation data.
_C017 Coastal Jacksonville Coastal GIS Jacksonville District GIS data .
_C018 Coastal Big Bend Gulf Coast Big Bend Gulf Coast GIS data.
_C019 Coastal Southwest Gulf Coast GIS Zone Southwest Gulf Coast GIS Zone d
_C020 Coastal Florida Keys GIS Zone Florida Keys GIS Zone data
_C021 Coastal Southeast Atlantic Coast GIS Zone Southeast Atlantic Coast GIS Zon
_C022 Coastal Central Atlantic Coast GIS Zone Central Atlantic Coast GIS Zone d
_C023 Coastal Northeast Atlantic Coast GIS Zone Northeast Atlantic Coast GIS Zone
_C024 Coastal Puerto Rico GIS Zone Puerto Rico GIS Zone data.
_C025 Coastal National Shoreline Management Don Stauble's High Resolution Dat
_C026 Coastal West Bay, FL Coastal zone management - West
_C027 Coastal Italian Sediment Study GIS Coastal zone management.
_C028 Coastal Savannah GIS Savannah Coastal GIS
Record: 1 of 240
Add Data
Select by Project
Select by Category
Select by Keyword
Edit Layers
Available Projects:
AIWW Navigation GIS
Add All Data by Project
Add Basemap Data by Project
AIWW Navigation GIS
Alligator Harbor Study
Anniston Environmental GIS
Apalachicola River
Baldwin County GIS
Baseline 2002
Camp Shelby GIS
Carter's Lake GIS
Available Layers:
<-- Add Selected Layer
Layer Description
Close

Exercise B: Indexing a New Layer

The GIS Management Database is used to manage projects contained within the enterprise GIS. This database contains forms to manage project codes and all layers created for the eCoastal system. The online interface allows users, outside of a GIS environment, to quickly query and view the details of the data and projects.

This data is accessed by the Power Users of your GIS system. Users with authorized access can add, edit, or delete GIS projects or references to data layers. Contents of this database are used to fuel some of the web and desktop applications of eCoastal.


eGIS Management - Manage Projects - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://155.82.164.40/egis/datamanagement/ManageProjectCodes.aspx
Go
Google Search Web 15 blocked AutoFill Options
US Army Corp of Engineers
eGIS Management Database
This database fuels many of the applications available through the eGIS tool. For assistance of populating this database, please visit http://gis.sam.usace.army.mil
Main
Manage Project Codes
Manage Layer Index
My Shortcuts
eGIS Working Directories
Search Project Codes...
Project Code
Select Value
Project Description
Project Type
Select Value
Search
Project Codes Form
Project Codes must start with an underscore, "_" and followed by a capital letter and 3 digits. See SOP for Project Code definitions.
New Project

Indexing a New Layer – Instructor Demonstration

Notes:

STOP **END OF EXERCISE B**

Exercise C: Using the Data Picker Tools

Background

All data that has been indexed in the GIS Management Database can be easily accessed using the Data Picker tools available on the eGIS: Data Viewer Toolbar. This GUI interface allows all users the ability to quickly search available layers and directly add items to the Table of Contents in ArcMap.

This custom interface allows the novice user, without prior knowledge of the Spatial Data Standards, to browse the geodatabase with little introduction to the system architecture.

Goal

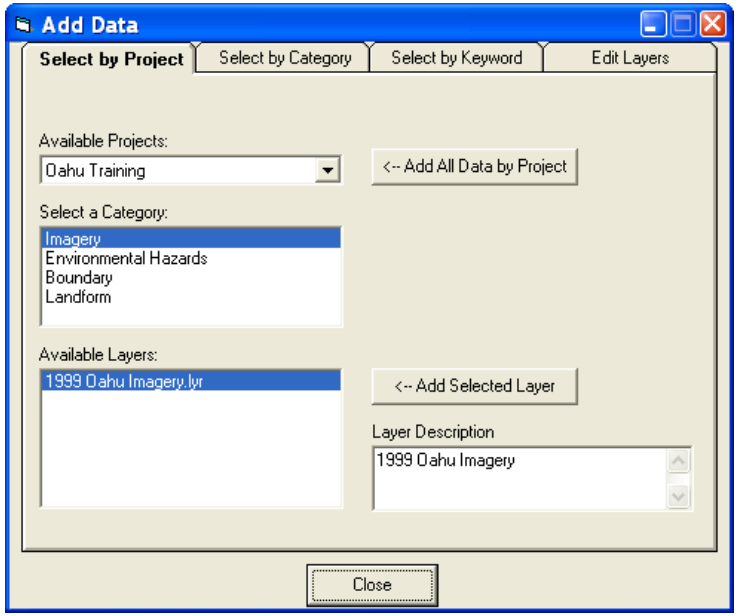
After this exercise you will be able to connect and browse the contents of the geodatabase using the Data Picker tool.

Objectives

1. Access the eGIS: Data Viewer Toolbar
2. Browse data stored in the database
3. Add data into the map display of ArcMap

Exercise C: Using the Data Picker Tools

The Data Picker form allows you to search for geospatial data currently available in the database. To load data from the geodatabase using the Data Picker tool, use the following steps:



1. Click the **Data Picker** Tool, from the Data Viewer Tools. This will open the following *Add Data* dialog:

2. The *Add Data* dialog allows you to search for data by Project, Category or Keyword.

3. To search by one of these topics, select the respective tab.

4. To search for data by Available Projects, from the 'Select by Project' tab, and select the desired project from the **Available Projects** list. Upon selection, this will populate the Category list.

   For this example, select the "**Oahu Training**" project and the "**Boundary**" category.

   Available layers appear once a Category is selected. A short description for the layer will be displayed in the 'Layer Description' once a layer name is clicked.

Exercise C: Using the Data Picker Tools

5. Click the "**Add Selected Layer**" button to add the desired layer into the Table of Contents.

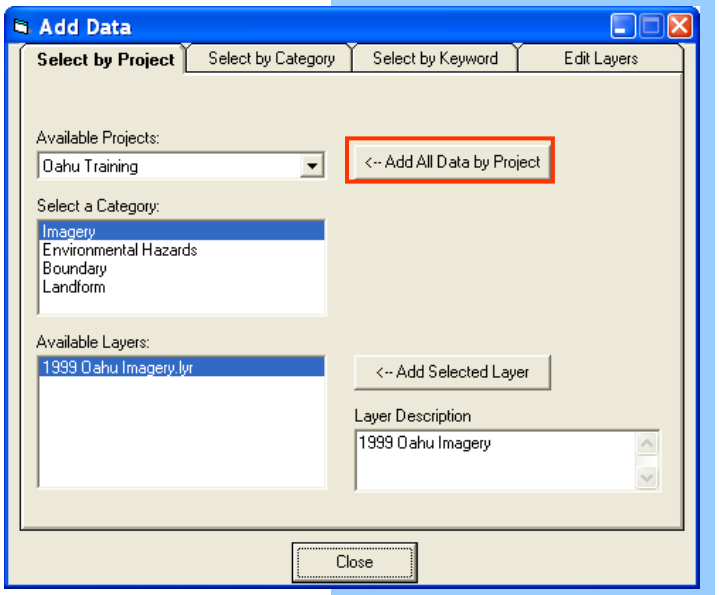
   For this example, select the "**1999 Oahu Imagery.lyr**"

Layer files are a reference to a data source such as a coverage, geodatabase feature class, raster, and so on that defines how the data should be displayed on a map. Layers can also define additional properties, such as which features from the data source are included. Layers can be stored in map documents (.mxd) or saved individually as layer files (.lyr). Layers are conceptually similar to themes at ArcView 3.x.

For eCoastal, layer files (.lyr) have been created and saved into the standard directory structure for all geospatial datasets available in the geodatabase. These layer files are then indexed using the GIS Management Database. Once indexed, the layers files are available in the Data Picker tool.

Did You Know?

Instead of individually adding in layers to the table of contents, once a Project is selected you can either "Add all Data by Project".



Exercise C: Using the Data Picker Tools

6. In some cases, you may not know the Project Name or the Category for your desired dataset. If this is the case, you can locate data by clicking the "**Select by Keyword**" tab.

7. Type in the desired keyword in the search textbox.

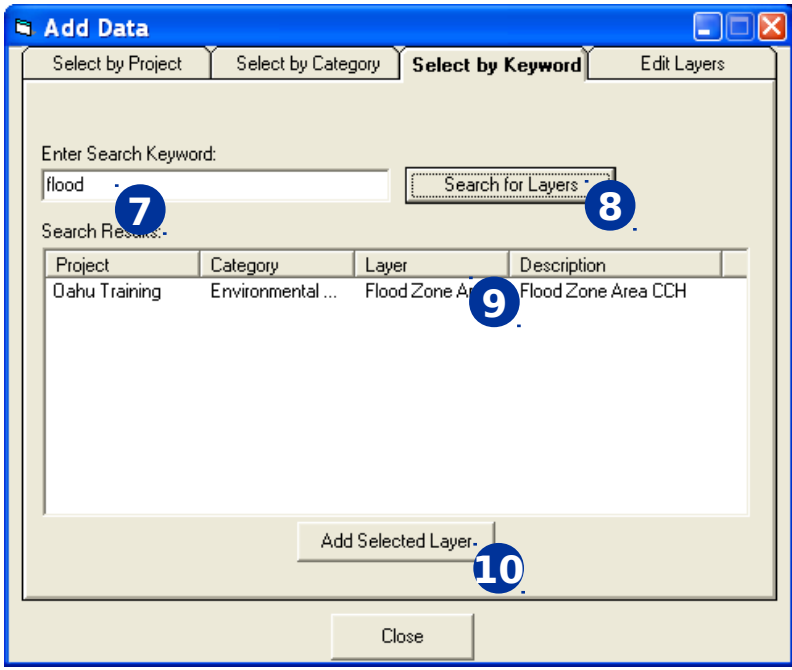
   - For this example, type in the keyword "**flood**".

8. Click the "**Search for Layers**" button to query the database.

9. The query will search the Project Name, Category, Layer Name, Description and Keywords fields from the database. The results appear below. Use the scroll bars to locate the desired dataset.

   - Locate the **Flood Zone Area CCH.lyr** from the Coastal GIS Basemap Project, and click to select.

10. Click the "**Add Selected Layer**" button to add the layer into the Table of Contents.



Exercise C: Using the Data Picker Tools

Individual Exercise

1. Take a few minutes to browse the data accessible through the Data Picker Tool. Build a map with various datasets using this custom tool.

2. Save the ArcMap project file as MyMap1.mxd into the C:\Training\MXD directory.

Exercise C: Using the Data Picker Tools

Exercise Summary

This exercise introduced you to the user interface created for ArcMap that allows you to browse the geodatabase without having a prior knowledge of Spatial Data Standards. You can search for data by project name, category, or keyword.

Exercise D: Using the Tools of the Data Viewer Toolbar

Background

The eGIS Data Viewer Toolbar was created to give the user quick tools for working with spatial data. For this exercise you will launch and use a number of tools on the toolbar.

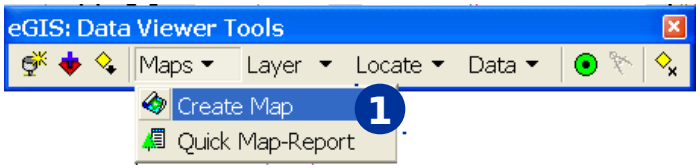
Goal

After this exercise you will be familiar with the tools available on the eGIS: Data Viewer Toolbar

Objectives

1. Access the eGIS: Data Viewer Toolbar
2. Make a Quick Map
3. Browse to available Data Viewer Tools.

Exercise D: Using the Tools of the Data Viewer Toolbar



1. Make a quick layout of the map display. From the Data Viewer Toolbar, select Maps → Create Map.

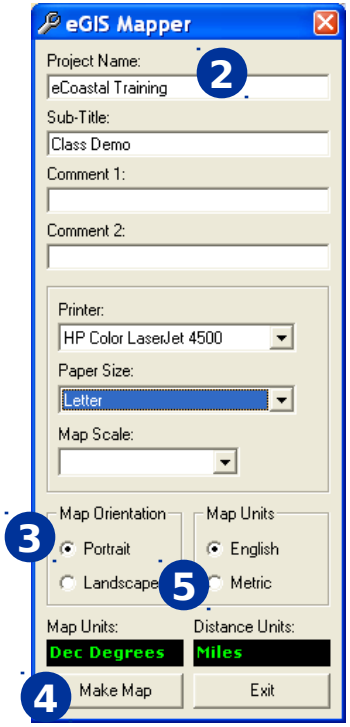
2. Enter **eCoastal Training** as the Project Name.

3. Select a **Portrait Map Orientation**. This tool will automatically build a map that is printer-ready.

4. Click the **Make Map** button when finished. Notice that a Layout has automatically been generated. At this point you can change any of the layout elements prior to sending the layout to the printer.

5. Change the Map Orientation size to **Landscape**. Notice the maps automatically reformats and resizes the layout controls.

6. Click **Exit**.



Exercise D: Using the Tools of the Data Viewer Toolbar

7. A tool was created to automatically import and plot points currently stored in an MS Excel Spreadsheet. From the Data menu of the Data Viewer Tools, select '**Import Excel as Point**'.

8. Click the **Open Workbook** button and browse to C:\Training\Data\Intro_to_eCoastal\Import_Excel.xls.

9. Select the sheet name '**Sample**' in for the Table option.

10. Select **POINT_X** as the X Item attribute.

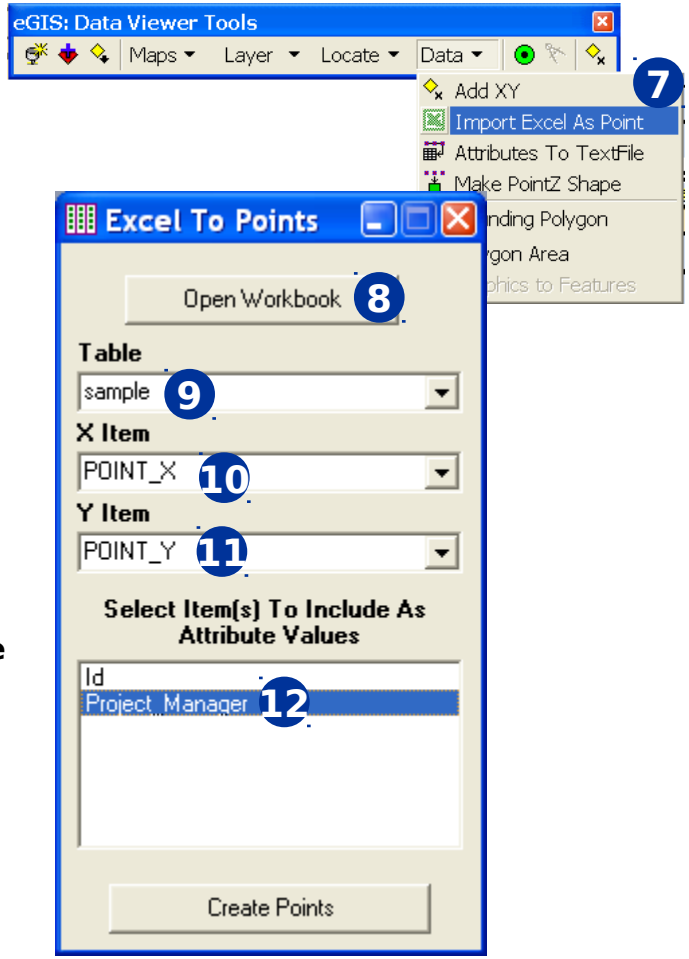
11. Select **POINT_Y** as the Y Item attribute.

12. You can select any additional attributes to add to your new feature class. Select **Project Manager** and click the **Create Points button**.

13. When prompted, select 'Yes' to set the spatial reference for this layer. Click the Select button and choose **Geographic Coordinate System → World → WGS 84**.

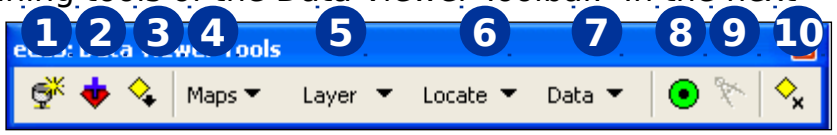
14. Browse to **C:\Training\Data\Intro_to_eCoastal** and name the new point feature class '**MyPoints**'.

15. A new feature class will be created that represents points locations stored in the Excel spreadsheet. Right-click on the new layer and select 'Zoom to Layer' to see the contents of your new layer.

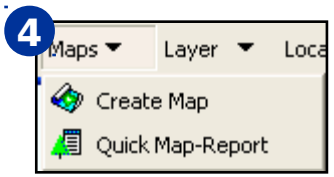


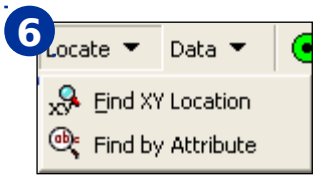
Exercise D: Using the Tools of the Data Viewer Toolbar

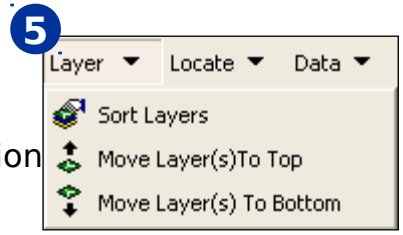
16. Take a couple of minutes and test out the remaining tools of the Data Viewer Toolbar. In the next module we will discuss the Data Picker tool.

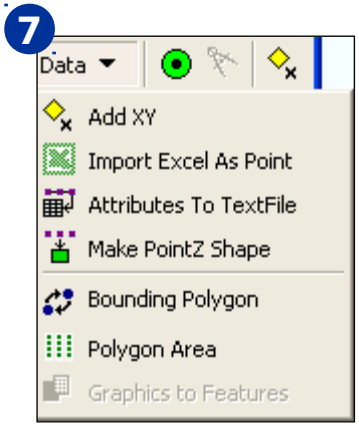


Available Functions of eGIS: Data Viewer Tools









1. Database Connections
2. Data Picker
3. Zoom to Layer
4. Maps: Options allows users to quickly produce printable products through a GUI interface.
5. Layer: Basic Table of Content functions
6. Locate: Functions that allow users to find an XY location or feature attribute.
7. Data: A number of functions are located in the data menu.
   Here, users can add XY attributes to point feature classes, plot XY coordinates stored in Excel spreadsheets, Export feature attributes to a text file, Create a 3D enabled "PointZ" shape, Generate a bounding polygon, Calculate the area of a polygon or covert drawn features to a shapefile.
8. Get XY Coordinate
9. Draw Azimuth
10. Delete onscreen Graphics

Exercise D: Using the Tools of the Data Viewer Toolbar

Exercise Summary

This exercise introduced you to some of the tools available on the eGIS: Data Viewer Toolbar. These tools provide user-friendly interfaces to standard GIS tasks, such as Add Data, Import Excel Spreadsheets, or Building a Map Layout. Users with minimal GIS training can quickly access and use data stored in the eCoastal geodatabase.

Module Overview

In this module we discussed the data access procedures used to retrieve and view data stored in the geodatabase. We also explored some of the tools available in the eGIS toolbars.

The custom tools were developed to enable all users to access and use data stored within the eCoastal system without having to be a GIS expert.